

**REMARKS:**

In response to the Office Action mailed March 28, 2002, claims 1 and 24 have been canceled without prejudice, claims 2 and 25 have been rewritten in independent form, and claims 8, 10-12, 14, 17, 19, 20, 27, and 29 have been amended. In addition, a paragraph of the specification has been amended to correct a typographical error.

In the Office Action, claims 1-30 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In addition, claims 1, 8-10, 12-20, 24, and 27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,097,295 ("the Griesinger et al. reference"). Finally, claims 11 and 28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Griesinger et al. reference in view of U.S. Patent No. 5,570,698 ("the Liang et al. reference"). Because neither of the cited references discloses, teaches, or suggests the subject matter of the present claims, reconsideration and withdrawal of the rejections is respectfully requested.

First, Applicant appreciates the Examiner's indication that claim 21 would be allowable if the indefiniteness rejection is overcome, and claims 2-7, 22, 23, 25, 26, 29, and 30 would be allowable if the indefiniteness rejections are overcome, and if rewritten to include all of the limitations of the base claim and any intervening claim. Claims 2 and 25 have been rewritten in independent form. Rejected claims 8, 10-12, 14, 17, 19, and 20 have been amended to depend from allowable claim 2, and rejected claim 27 has been amended to depend from allowable claim 25. Thus, with claim 1 and 24 canceled, only allowable claims remain in the present application.

Turning to the indefiniteness rejections, claim 2 has been amended to recite "one or more sensors on the device for detecting light from the array of emitters that is reflected off of the eye or

its eyelid.” Support for this limitation may be found, for example, at page 17, lines 3-8 and page 47, lines 18-23. No new matter has been introduced. In addition, claim 29 has been amended to depend from claim 25, which provides antecedent basis for the one or more sensors recited in claim 29.

With respect to the indefiniteness rejection of the claims for failing to recite “for determining the alertness/drowsiness of a driver,” no such amendment is required to make the present claims definite. Claims 2 (amended to recite the limitations of claim 1) and 21 recite a system for monitoring movement of a person’s eye including subsequently cited elements that clearly and definitely identify the scope of the claimed invention. Absence of an intended use from the preamble does not make these elements, nor the claim as a whole, indefinite. Further, the claimed system has multiple uses, only some of which relate to monitoring the alertness or drowsiness of a driver. For example, as described between page 28, line 16 and page 32, line 8 at page 28, lines 16-21, many different types of users and applications are identified for which the disclosed systems may be applied. These include monitoring patients’ medical conditions, monitoring psychological situations, biofeedback applications, in addition to individuals operating vehicles or equipment. Thus, claims 2 and 21 are definite, and the rejection under 35 U.S.C. § 112, second paragraph, should be withdrawn.

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Docket No. 258/71

Certificate of Mailing Transmission (37 C.F.R. § 1.8(a)):

258/171

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Dated: August 23, 2002

Name of Person Certifying:

define patentable subject matter over the cited prior art. Accordingly, reconsideration and allowance

of the application is requested.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Respectfully submitted,

Applicant: TORCH, William C.

Filing Date: December 18, 2000

Serial No.: 09/740,738

Dated: August 28, 2002

Title: SYSTEM AND METHOD FOR COMMUNICATION USING EYE MOVEMENT

BINGHAM MCCUTCHEN LLP

Assignee: Unassigned

Examiner: N. Tong

Group/Art Unit: 2632

By:

William A. English

Reg. No. 42,515

Attorneys for Applicant

Assistant Commissioner for Patents

Bingham McCutchen LLP

Three Embarcadero Center, 18<sup>th</sup> Floor

San Francisco, California 94111

Telephone: (415) 393-2000

Telefax: (415) 393-2286

PETITION AND FEE FOR EXTENSION OF TIME

(37 C.F.R. § 1.136(a))

Sir:

Pursuant to 37 C.F.R. § 1.136(a), Applicants hereby petition for a three (3) month extension of time to respond to the Office Action mailed on March 28, 2002.

1. The communication in connection with the matter for which this extension is requested

a. ☒ is filed herewith; or

b. ☐ has been filed on \_\_\_\_\_

2. ☒ Applicant(s) claim Small Entity Status under 37 CFR § 1.27.

3. The following fees are submitted:

19/08/2002 15:55:01 09/740,738 09/40738

01/08/2002 15:55:01 09/740,738

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	TOTAL MONTHS REQUESTED	OTHER THAN SMALL ENTITY	SMALL ENTITY	CALCULATIONS <sup>Patent</sup>
<b>VERSION WITH MARKINGS SHOWING AMENDMENTS:</b>				
a. <input type="checkbox"/>	one month	\$110.00	\$55.00	\$
b. <input checked="" type="checkbox"/>	two month	\$400.00	\$200.00	\$200.00
c. <input type="checkbox"/>	FIGS. 7A-7C are sectional and front views of the devices of FIGS. 6A-6C, respectively,			
d. <input type="checkbox"/>	emitting light towards and detecting light reflected from a closed eyelid.			\$
e. <input type="checkbox"/>	five month	\$1,960.00	\$980.00	\$
f. <input type="checkbox"/>	An extension for _____ months has already been secured for filing the above-identified application. The system of claim 1, further comprising for monitoring movement of a person's eye, comprising: _____, minus the fee previously paid (\$ _____) equals \$ _____ (total fee due).			\$
a device configured to be worn on a person's head; TOTAL FEES =				\$200.00

☒ an array of emitters on the device for directing light towards an eye of the person when the Conditional Petition for Extension of Time: An extension of time is requested to provide device is worn, the array of emitters configured for projecting a reference frame towards the eye; communication have been considered.

☐ a camera oriented towards the eye for monitoring movement of the eye relative to the reference frame; and

☐ Please charge Deposit Account No. 50-1192, in the amount \_\_\_\_\_

of \$200.00 to cover the above-fees. A duplicate copy of this sheet is enclosed.

☒ one or more sensors on the device for detecting light from the array of emitters that is reflected off of the eye or its eyelid, the one or more sensors producing an output signal indicating when the eye is open or closed;

Respectfully submitted,

BINGHAM MCCUTCHEN LLP

Dated: 8 August (amended) 2002 By: William A. English The system of claim 21, wherein the array of emitters comprises a

plurality of emitters disposed in a substantially vertical arrangement on the device.

Attorneys for Applicant

Bingham McCutchen LLP  
Three Embarcadero Center, 18<sup>th</sup> Floor  
San Francisco, California 94111  
Telephone: (415) 393-2000  
Telefax: (415) 393-2286  
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258/171  
Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

10. (amended) The system of claim 24, wherein the array of emitters is configured for projecting a set of crossed bands towards the eye for dividing a region including the eye into four quadrants.

Applicant: TORCH, William C. Assignee: Unassigned  
Filing Date: December 18, 2000 Examining: N. Fong  
Serial No.: 09/740,738 Group Art Unit: 2632  
Title: SYSTEM AND METHOD FOR COMMUNICATION USING EYE MOVEMENT

PRELIMINARY AMENDMENT

11. (amended) The system of claim 24, further comprising a transmitter on the device for wireless transmission of video output signals from the camera to a remote location.

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AMENDMENT

12. (amended) The system of claim 24, wherein the array of emitters comprise infrared emitters configured to emit pulses of infrared light.

Dear Sir/Madam:

In response to the Office Action mailed March 28, 2002, please amend the above-identified application as follows:

14. (amended) The system of claim 24, wherein the camera is mounted on the device.

IN THE SPECIFICATION:

Please replace the paragraph at page 13, lines 19-21 with the following:

17. (amended) The system of claim 24, further comprising a sensor on the device for detecting one or more physiological characteristics of the person.

FIGS. 7A-7C are sectional and front views of the devices of FIGS. 6A-6C, respectively, emitting light towards and detecting light reflected from a closed eyelid.

19. (amended) The system of claim 24, further comprising at least one of an orientation sensor for detecting the spatial orientation of the device and an actigraphic sensor.

CERTIFICATE OF MAILING  
(37 C.F.R. §1.8a)

20. (amended) The system of claim 24, wherein the device comprises at least one of an eyeglass frame, a hat, a helmet, a visor, and a mask.

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as First Class Mail in an envelope addressed to the Commissioner for Patents, Washington, D.C. 20231.

May 06, 2002

Date of Deposit

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25. (amended) ~~A~~ **The method of claim 24, for monitoring movement of a person's eye using a detection device including an array of emitters that are directed towards an eye of the person when the detection device is worn, and a camera oriented towards the eye, the method comprising:**

**emitting light from the array of emitters towards the eye to project a reference frame onto the eye;** a device configured to be worn on a person's head;  
**an array of emitters on the device for directing light towards an eye of the person when the device is worn; the array of emitters configured for projecting a reference frame towards the eye;**  
**generating a graphical output of the movement monitored by the camera relative to the reference frame;**  
**a camera oriented towards the eye for monitoring movement of the eye relative to the reference frame; and**  
**wherein the detection device further comprises one or more sensors, and wherein the method further comprises detecting light from the array of emitters reflected off of the eye with the one or more sensors, the one or more sensors producing a light intensity signal indicating when the eye is open or closed.**

27. (amended) ~~The system of claim 2, wherein the array of emitters comprises a plurality of emitters disposed in a substantially vertical arrangement on the device~~ **The method of claim 2524, wherein the monitoring step comprises measuring movement of the eye's pupil relative to the reference frame.**

29. (amended) ~~The system of claim 2, wherein the array of emitters is configured for projecting a set of crossed beams towards the eye for dividing a region including the eye into four quadrants.~~ **The method of claim 2524, further comprising correlating the output signal from the one or more sensors with video signals produced by the camera monitoring movement of the eye relative to the reference frame, thereby determining the person's level of alertness.**  
**The system of claim 2, further comprising a transmitter on the device for wireless transmission of video output signals from the camera to a remote location.**